

Trade Openness and Its Effects on the Global Competitiveness of OPEC Member Countries: Empirical Approach

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Abstract: *This paper examined the inter-connectedness of trade openness on the global competitiveness of OPEC member countries from 1992 to 2021. This is borne out of the inability why countries do not compete favourably even when they opt for trade integration. The panel corrected standard error formed the main regression estimate. Various trade openness proxies used are import ratio (import to GDP), export ratio (Export to GDP), Aggregate trade Ratio (Sum of exports and imports to GDP), and exchange rate (control). Meanwhile, global competitiveness was measured by per capita GDP of the OPEC Member countries. The panel corrected standard error technique was adopted. The study reported that, import ratio and exchange rate reduces the global competitiveness of OPEC member countries significantly but export ratio and aggregate trade ratio increased the global competitiveness of OPEC member countries. Hence, the study concludes that trade openness have mixed effect on the global competitiveness of OPEC Member countries. As such, export revenue should be used for productive purposes, less of exports and that the activities of the Bureau de change should be re-examined. This is critical to reducing the rising exchange rate. Lastly, trade barriers should be spotted and addressed accordingly.*

Keywords: Trade Openness, Global Competitiveness, OPEC Member Countries

1. INTRODUCTION

Over time, trade openness drivers and global competitiveness nexus has gotten high attention among academics. This is justified on the ground that, since countries are endowed differently, they can counter-balance their trade deficiencies via trade. By 'trade imbalances' here signals a situation whereby trade inflows (imports) exceeds trade outflows (exports) and vice versa. As stated by Agbogun and Ehiedu (2022), the reason behind countries' involvement in trade beyond the need to counter-balance their trade imbalance is that, no country can in modern time be said to live in a state of autarky and that, through exchange of goods, idea, services, technical knowhow, countries level of competitiveness can be improved. More so, with the advent of trade liberalization and economic globalization, the issue of trade openness remains one of the most intriguing construct (Bunje, Abendin, & Wang, 2022). As such, the idea that, trade openness improves economic performance of a country is a critical issue not just for policy formulation only but for adjudging a country's competitiveness index.

Furthermore, a country's level of competitiveness is strongly dependent on its abilities to compete favourably with other countries. This is because as the world becomes more integrated, the need to examine the level of competitiveness is germane. As defined by Abendin and Duan (2021), global competitiveness is the extent to which a country is able to compete favourably with other countries. However, the contending issue here is that, is a country's level of competitiveness linked to the extent to which the country is open to trade?

Although, the trade openness effects on is not a new phenomenon, its effects on economic performance is still a hot debates in the literature. Hence, study contributed to extant literature by disaggregating trade openness into import ratio, export ratio and aggregate trade ratio. Specifically, the study examined the effect of import ratio, export ratio and aggregate trade ratio on Real Gross Domestic Product-RGDP in Nigeria.

This paper is structured into five (5) major sections which are organized into the followings; (1) introduction (2) literature review (3) methodology (4) result estimates (5) conclusions and Recommendations.

2. LITERATURE REIVEW

The term trade openness-TROP accounts for the degree to which a country is open to trading activities. TROP accounts for the rate at which a country's economic policies supports trade with other countries. Usually, such policies support in and outflows of commodities. While the inflows speak of the imports, the outflows speak of exports of commodities. More so, TROP accounts for a country's dependence on the foreign trade. Thus, TROP is built on finance, trade, and investments.

Economic competitiveness index is defined as the yearly increase in a country's real gross domestic product-RGDP or all other economic performance measures. Simply put, it is the yearly increases in a country's aggregate goods produced and services rendered.

From the theoretical front, three theories were used to underpin the study. These three (3) theories are the Mercantilism theory (MET), Comparative Advantage-TCA and Edwards' New Development theory-ENDT. The MET argues that, the more an economy is opened to trade, the higher the economic performance. That is, both TROP and economic performance are linear. However, this theory holds that though trade generally is highly beneficial economically, the exporting country gain more from trade than the importing country. As such, countries can only gain from trade if their export base is far higher than their import base. Justifiably,

most importing countries like Nigeria import consumable goods more than productive goods. These goods do not improve economic performance.

Following the theory of Comparative Advantage-TCA developed by Adam Smith, countries can only gain from trade if they imports products that they of comparative cost disadvantage and export those products that of comparative cost advantage to them. This theory further contends that, such country should invest in the sector with high comparative cost advantage. This theory was extended by Edwards' New Development theory-ENDT proposed in 1987. This theory states that, a country can only gain from foreign trade, if such country trade with countries that are advanced technologically (Grossman & Helpman, 1991). This is justified on the doctrine of imitation costs. This assertion may not be true in all instances in that the trade determines growth sometime.

From the above, theorists still have not come to a uniform strand on the relationship between TROP and Global competitiveness. Empirically, studies on TROP and economic performance are though abounds but are mixed and conflicting. For example, Bunje, Abendin, and Wang (2022) examined the effect of DOP on ECG of African economy from 2000 down to 2018. The study covered 52 African countries. The regressor is the DOP measured proportion of imports and exports to GDP ratio, import to GDP ratio, export to GDP ratio. The study was patterned after the generalized methods of moments-GMM. The results reported that DOP has a mixed influence on ECG. More so, imports stifle growth while exports boost growth in Africa.

Abendin and Duan (2021) explored the role of the digital economy and international trade on Africa's ECG from 2000 to 2018. The study adopted the POLS, random and fixed effect, and sys-GMM models. The merchandise trade served as a trade openness measures. The study reported that the TROP has a large positive impact on economic development in Africa.

Aremo and Arambada (2021) examined the effect of DOP on ECG in sub-Sahara African countries from 1980 down to 2017. The study adopted the GMM estimates. The study affirmed that, DOP improves ECG. However, DOP in middle-income countries is varied.

Adegboyo, Keji, and Fasin (2021) examined the government policies and its effects on Nigerian ECG from 1985 to 2020. Data was sourced from CBN and the World Bank Data Base (2020). The study adopted the ARDL long-run result shows that interest rate impels growth of the economy while money supply deters growth of Nigeria's economy. Lastly, the DOP reduces the Nigerian economy.

Oloyede, Osabuohien, and Ejemeyovwi (2021) examined DOP and its effects on macroeconomic outlooks of Africa's economic communities (Economic Community of West African States-ECOWAS and Southern African Development Community-SADC). Specifically, 31 African countries, comprising of 15 ECOWAS and 16 SADC members from 2006 to 2017 was covered. The study adopted the Panel data methodology. The study sourced data from the World Bank. The study reported that impact of TROP on macroeconomic outlook of Africa's communities.

Olugbenga and Oluwabunmi (2020) examined the interplay between TROP and the GDP of Nigeria from 1980–2018. The ARDL Model was used. Inflation and real exchange rate impacted on ECG adversely, while interest rate and money supply improves on ECG. However, DOP had no effect on the ECG of Nigeria.

Maliszewska, Mattoo, and Mensbrugge (2020) studied the Covid-19 impact on trade and GDP. The study adopted the standard global-equilibrium model. The study modeled foreign trade cost, redirection of demand from events that necessitated proximity among people, decrease in travel service and underutilization of labour and the capital. The baseline scenario reported that the Covid-19 pandemic had an adverse impact on GDP and trade such that the recorded GDP value of 2% is below the world benchmark value of 2.5%. Meanwhile, the drop was 4% lower than the world benchmark even though negative shocks were recorded in trade tourist services and domestic service output.

Gondwe (2020) studied the Covid-19 and its effect on African economic development. The study was patterned after the GMM estimator from 2000 to 2018. Variables considered include: commodity price and global GDP. The study sourced data from the World Bank, IMF and OECD. Covid-19 pandemic had mild effects on African economic development. More so, the emergence of Covid-19 made crude oil prices and food exports to fluctuate. Further, Covid-19 emergence impacted on the trading activities of the African economy very mildly.

Ramzan, Sheng, Shahbaz, Song, and Jiao (2019) examined DOP on 82 countries from the 1980 down to 2014. The study adopted the panel data methodology. The study reported that, DOP improve ECG process. As a result, economies with higher growth rate may be in a far better position to reap the benefits of TROP than economies with lower growth rates.

Huchet-Bourdon, Le Mouël, and Vijil (2018) used the GMM estimation approach to study the openness-growth connection in an unbalanced panel of 169 countries from 1988 to 2014, adopting quality exports and variety exports as openness channels. The study reported that TROP had non-linear effects on GDP. More so, DOP improves export diversity.

Bagnai, Rieber, and Tran (2016) examined trade and generalized balance-of-payments constraint on the GDP of Sub-Saharan Africa (SSA) from the 1990 down to 2008. The study covered 20-low income SSA countries. The study adopted the panel methodology. The study relied on the post-Keynesian balance-of-payments constrained growth approach. Trade and generalized balance-of-payments constraint improved SSA growth rate.

Anifowose (2021) studied the exchange (EXCR), and inflation rates (INFR) on ECG in Nigeria from 1981 to 2020. The study adopted the Non Linear ARDL approach. They reported that, exchange rate is positively related to ECG while INFR have adverse non-contemporaneous effect on growth.

3. METHODOLOGY

3.1. Research Approach (REA), Population (POP), and Sample Size (SAS)

This paper adopted the longitudinal research approach. This approach is critical as ensures that, the cross-sectional components of the variables used are accounted for. This approach is feasible for research of this nature as it ensure that, the time-series components of the variables are considered as well. Again, this research approach is robust, reliable, and is also okay for quarterly data. Furthermore, our population covers the whole 13 countries that are members of OPEC. However, only 10 of these countries were considered. The reason for chosen these 10 countries is borne out of data availability. These 10 countries were purposively chosen over 30 years (1992 to 2021 i.e. 300 observations considered).

3.2. Data Sources and Technique

The data were majorly sourced from the sampled country’s apex banks and World Bank, 2021. The sourced trade openness and global competitiveness data covered are import ratio, export ratio, and aggregate trade ratio, exchange rate, and GDP growth Index. The data covered from 1992 to 2021. Meanwhile, the panel data estimation technique was considered. The panel diagnostic tests used to determine which of the panel data variant that best fit the study are: Hausman Panel Diagnostic test. The Hausman Panel Diagnostic test was used to choose between the Random Effect (RE) Panel Modeling and the Fixed Effect (FE). While the null hypothesis place at 5% significant level supports the RE, the alternative hypothesis supports the FE. Meanwhile, various robustness checks done before the main analysis include: Panel Unit root, and Panel Cointegration test. The Econometric Views package was used to run the analysis.

3.3. Model Specification and Variable Measurements

Our model is econometrically represented as:

$$GCOP = \beta_0 + \beta_1IMR + \beta_2EXR + \beta_3 ATR + \beta_4EXCR + Ut \text{-----} (2)$$

Where:

- GCOP = Global Competitiveness Index
- IMR = Import Ratio
- EXR = Export Ratio
- ATR = Aggregate Trade Ratio
- EXCR = Exchange Rate
- β_0 = Constant Value
- $\beta_1 - \beta_6$ = Parameter Estimate
- Ut = Error Term

Table 1: Operationalization of the Study Variables

Variable	Sign	Nature of the Variable	Measurement
Global Competitiveness	GCOP	Dependent	GDP Growth
Import Ratio	IMR	Independent	Aggregate Import/GDP
Export Ratio	EXR	Independent	Aggregate Export/GDP
Aggregate Trade Ratio	ATR	Independent	Sum of the Proportions of Aggregate Exports and the aggregate Imports to GDP
Exchange Rate	EXCR	Control	Domestic currency to foreign currency.

Source: Researcher’s Compilation (2022)

Table 1 evidenced how each of the variables is operationalized. This is with a view to quantitatively express each of them.

4. RESULTS, DISCUSSIONS, AND ITS IMPLICATIONS

4.1. Pre-Estimation Test

To validate the model, various pre-estimation tests were considered. They are shown in table 2 to 5:

Table 2: Descriptive Statistics

Targeted Variables	Mean	Std. Dev.	Maximum	Minimum	Observations
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GCOP	10467.28	12399.52	44498.94	554.04	300
IMR	258.41	231.71	1643.57	5.16	300
EXR	124.76	73.03	410.24	4.26	300
ATR	300.38	296.47	1774.10	10.19	300
EXCR	138.19	213.52	732.40	0.00	300

Source: E-Views Version 9 (2022)

Table 4.2 evidenced that, GCOP, IMR, EXR, and EXCR had average values of 10467.28, 258.41%, 124.76%, 300.38%, 138.19 but varied by 12399.52, 231.71%, 73.03%, 296.47%, and 213.52. Again, they had minimum values of 554.04, 5.16%, 4.26%, 10.19, and 0 respectively. Lastly, they reported maximum values of 44498.94, 1643.57, 410.24, 1774.10, and 732.40 respectively.

Table 3: Correlation Matrix

Targeted Variables	GCOP	IMR	EXR	ATR	EXR
GCOP	1.0000				
IMR	-0.8174	1.0000			
EXR	0.7653	0.2589	1.0000		
ATR	0.5639	0.1903	0.1514	1.0000	
EXCR	-0.9457	0.3094	0.2283	0.1889	1.0000

Source: E-Views Version 9 (2022)

In table 3, IMR and ATR are positively related with GCOP yet strong and moderate respectively since their respective coefficient values (0.7653 & 0.5639) are above 70% (as in strong relationship) and between 30 to 69% 70% (as in moderate relationship). However, both IMR and EXCR are negatively related with GCOP yet strong since their respective coefficient values (-0.8174 & -0.9457) are above 70%. Still, no regressor related with each other at least 70% implying low possibility of multi-collinearity problems in the series.

Table 4: Panel Unit Root Test

AT LEVEL (1(0))			
Variables	Levin, Lin & Chu t-Statistics	P-value	Decision
GCOP	-3.7716	0.0001	Stationary
IMP	-3.0336	0.0012	Stationary
EXP	-4.0148	0.0000	Stationary
ATR	-2.0477	0.0203	Stationary
EXR	-5.2304	0.0000	Stationary

Source: Econometric Views version 9.0 (2022)

Table 4 evidenced that, GCOP, IMP, EXP, ATR, and EXR were all stable at their natural states. This suggests the need for testing if they co-integrate as well.

Table 4.5: Kao Residual Cointegration Test

Series: GCOP IMR EXR ATR EXCR

Sample: 1992 2021

Included observations: 300

	t-Statistic	Prob.
ADF	-1.6060	0.0312

Source: Econometric Views version 9.0 (2022)

Table 5 evidenced that, trade openness cointegrated with economic global competitiveness. By implication, trade openness has long run effect on the global competitiveness of OPEC member states.

4.2. Panel Regression Estimate

To ensure that, the statistical inferences that may be drawn from this current study is accurate and fit for policy formulations, the model was first subjected to the Hausman Diagnostic test before running the main panel regression. Accordingly, the Hausman Diagnostic test is used to choose between the Random Effect Panel modeling (REPM) and the Fixed Effect Panel modeling (FEPM). Wherein the p-value of Hausman Diagnostic test Chi square value is above 5%, the REPM would be preferred over the FEPM. Meanwhile, if it falls below 5%, FEPM is preferred instead. For ease of reference, the result is shown in table 5:

Table 5: Hausman Diagnostic test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.47060	4	0.6850

Table 5 reported a prob. value of 0.6850 evidencing that the REPM is preferred over the FEPM. However, to avoid over parameterization of study variables, the study opted for panel corrected standard error. The summarized result is in table 6:

Table 6: Panel Corrected Standard Error Estimate

Regressor: GCOP					
Periods Covered: 1992 to 2021 (i.e. 30 years)			Cross-sections Covered: 10 Units		
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	3.2616	0.9907	3.2923	0.0010	
IMR	-0.7455	0.1765	-4.2234	0.0000	
EXR	0.8071	0.2097	3.8487	0.0001	
ATR	0.5273	0.1632	3.2316	0.0012	
EXCR	-0.7081	0.2453	-2.8869	0.0039	

$R^2=0.6860$; Adj. $R^2=0.6729$; Durbin-Watson statistics = 2.1069; Prob.(F-statistic)= 0.000

Table 6 show an $R^2=0.6860$; Adj. $R^2=0.6729$; Durbin-Watson statistics = 2.1069; Prob.(F-statistic)= 0.000. By implication, both the R^2 and the Adj. R^2 affirmed that the model has a high predictive power, the Durbin Watson test evidenced that the model did not auto-correlate while the Prob.(F-statistic) evidenced that, the model is significantly different from zero (i.e. the more the OPEC member countries are open to trade, the more their global competitiveness index increases). Individually, reduction in import ratio and exchange rate (currency appreciation) by 1%, will increase the GCOP index of the member countries by 74.55% and 70.81%, respectively. By implication, low import penetration having opted for currency appreciation, is a critical GCOP index driver. Meanwhile, increase in export rate and aggregate trade ratio by 1% will increase the GCOP index of the member countries by 80.71% and 52.73%, respectively. By implication, high export penetration and aggregate trade ratio (sum of ratio of imports and exports to GDP) is a critical GCOP index driver. This supports the export-trade led hypothesis (Agbogun & Ehiedu, 2022).

5. CONCLUSION AND RECOMMENDATIONS

This paper examined the inter-connectedness of trade openness-TROP on the global competitiveness of OPEC member countries from 1992 to 2021. This is borne out of the inability why countries do not compete favourably even when they opt for trade integration. The panel corrected standard error formed the main regression estimate. Various trade openness proxies used are import ratio (import to GDP), export ratio (Export to GDP), Aggregate trade Ratio (Sum of both the total exports and the total imports to GDP), and exchange rate (control). Meanwhile, global competitiveness was measured by per capita GDP of the OPEC Member countries. The study concludes that trade openness have mixed effect on the global competitiveness of OPEC Member countries. Hence, recommend that, export revenue should be used for productive purposes, less of exports and that the activities of the Bureau de change should be re-examined. This is critical to reducing the rising exchange rate. Lastly, trade barriers should be spotted and addressed accordingly.

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